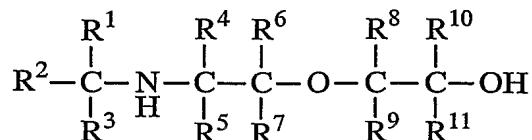


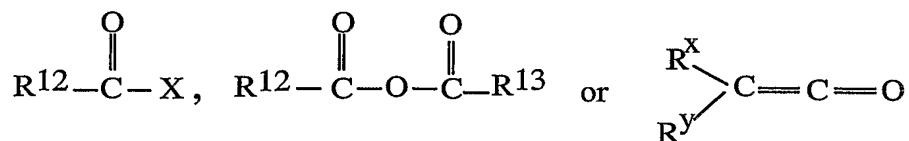
- 26 -

CLAIMS:

1. A method for the synthesis of severely sterically hindered secondary aminoether alcohols of the formula



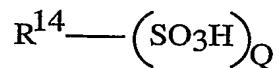
wherein R¹ and R² are each selected from the group consisting of alkyl, hydroxylalkyl radicals having 1 to 4 carbon atoms or in combination with the carbon atom to which they are attached they form a cycloalkyl group having 3 to 8 carbon atoms, and R³ is selected from the group consisting of hydrogen, alkyl or hydroxylalkyl radicals having 1 to 4 carbon atoms, and R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ are the same or different and are selected from the group consisting of hydrogen, alkyl and hydroxylalkyl radicals having 1 to 4 carbons provided that at least one of R⁴ or R⁵ bonded to the carbon atom directly bonded to the nitrogen atom is an alkyl or hydroxylalkyl radical when R³ is hydrogen, the process involving reacting an acid halide or organic carboxylic acid anhydride, a ketene, or mixture of any two or of all three thereof, of the formula



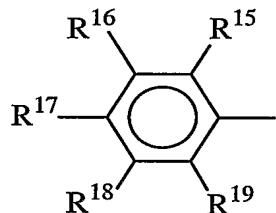
wherein R¹² and R¹³ are the same or different and each is selected from the group consisting of alkyl radicals having 1 to 4 carbon atoms, aryl radicals bearing hydrogen or C₁-C₁₀ alkyl groups substituted thereon, and mixtures thereof, X is halogen selected from the group consisting of F, Cl, Br, I, and mixtures thereof, and R^x and R^y are the same or different and are selected from the group consisting of hydrogen, alkyl radicals having 1 to 4 carbon, aryl radicals bearing substituents selected from the group consisting of hydrogen and one or more alkyl radicals, and mixtures thereof, or R^x and R^y in combination

- 27 -

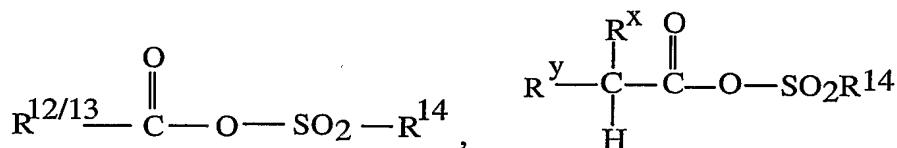
with the carbon to which they are attached form a cycloalkyl radical having 3 to 8 carbons, with an organic sulfonic acid of the formula



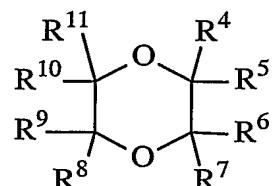
wherein Q is an integer selected from 1 to 4, R¹⁴ is selected from the group consisting of alkyl radicals having 1 to 4 carbon atoms, haloalkyl radicals of the formula C_nH_{(2n+1)-z}X_z wherein n is 1 to 4, X is selected from the group consisting of F, Cl, Br, I, and mixtures thereof, and z ranges from 1 to 5, aryl radicals of the formula



wherein R¹⁵, R¹⁶, R¹⁷, R¹⁸, and R¹⁹ are the same or different and are selected from hydrogen and alkyl radicals having 1 to 20 carbon atoms, and mixtures thereof, to yield an acyl sulfonate of the formula

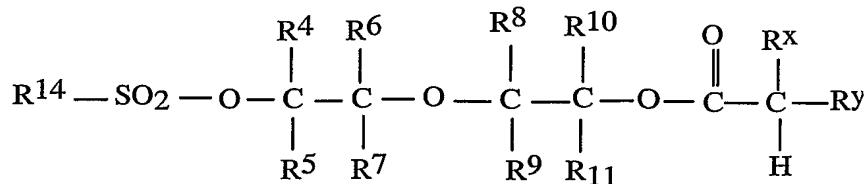
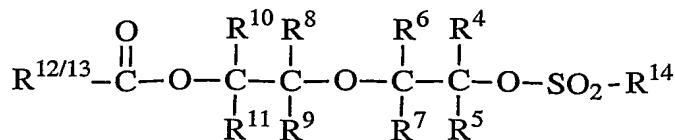


or mixtures thereof, which is then reacted with a dioxane of the formula

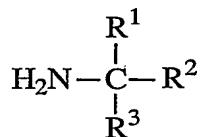


wherein R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are the same or different and are selected from hydrogen, alkyl and hydroxyalkyl radicals having 1 to 4 carbons to yield

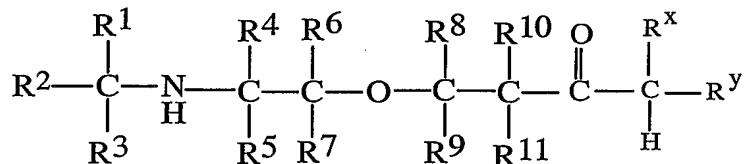
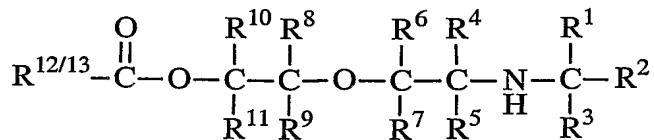
- 28 -



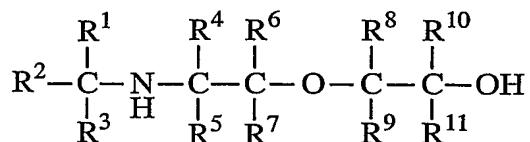
or mixtures thereof, which is then aminated with an alkylamine of the formula



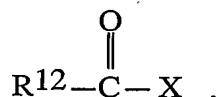
wherein R¹, R², and R³ are as previously defined to yield



or mixtures thereof, which is then hydrolyzed with base to yield

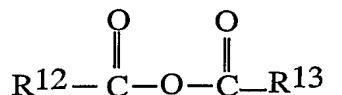


2. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using the acid halide of the formula

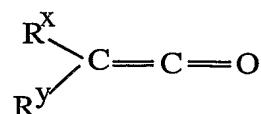


- 29 -

3. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using the organic carboxylic acid anhydride of the formula



4. The method of claim 1 for the synthesis of severely sterically hindered secondary aminoether alcohols using ketene, of the formula



5. The method according to any one of the preceding claims wherein R¹, R² and R³ are methyl radicals.

6. The method according to any one of the preceding claims wherein R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, R¹¹, are hydrogen and R^x and R^y are hydrogen or phenyl.

7. The method according to any one of the preceding claims wherein R¹⁵, R¹⁶, R¹⁸, and R¹⁹ are hydrogen and R¹⁷ is hydrogen or methyl.

8. The method according to any one of the preceding claims wherein the base is selected from alkali metal hydroxide alkali metal alkoxide, alkali metal carbonate.

9. The method according to any one of the preceding claims wherein R¹, R² and R³ are methyl, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are hydrogen, R¹⁵, R¹⁶, R¹⁸, and R¹⁹ are hydrogen, R¹⁷ is hydrogen or methyl and R^x and R^y are hydrogen or phenyl.

10. The method of any one of the preceding claims wherein the acyl sulfonate is made by reacting organic carboxylic acid halide, organic carboxylic

- 30 -

acid anhydride, ketene, mixtures of any two or of all three thereof with the organic sulfonic acid at a temperature in the range of about -20 to 150°C at a pressure between about 1 bar to 100 bars, the acyl sulfonate is reacted with dioxane at a dioxane to acyl sulfonate ratio of about 1:1 to about 10:1 at a temperature between about 50°C to about 200°C, the resulting cleavage product is reacted with alkyl amine in an amine to cleavage product sulfonate group ratio in the range of about stoichiometric to about 10:1 at a pressure of about atmospheric (1 bar) to about 100 bars, at a temperature of about 40° to about 200°C, and wherein the aminated product is hydrolyzed with base at between about 20°C to about 110°C.

11. The method of any one of the preceding claims wherein the mixing of the anhydride, acid halide, ketene or mixture of any two or of all three thereof, the organic sulfonic acid and the dioxane is combined in a single step, the reaction mixture being heated at a temperature between about 50°C to about 200°C to produce a cleavage product, the cleavage product and the alkylamine being reacted at an amine to cleavage product ratio ranging from about stoichiometric to about 10:1 at a pressure of about atmospheric (1 bar) to about 100 bars, at a temperature of about 40°C to about 200°C, and wherein the aminated product is hydrolyzed with base at between about 20°C to about 110°C.

12. The method of any one of the preceding claims wherein Q is 1.